

Virginia

Standards of Learning Assessments

Test Blueprint

Grade 3 Mathematics

**2016 Mathematics
Standards of Learning**

**This revised test blueprint will be effective with the
administration of the 2018-2019 Mathematics Standards of
Learning (SOL) tests.**

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Grade 3 Mathematics Standards of Learning

Test Blueprint

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General Test Information

Test Blueprint

Much like the blueprint for a building, a test blueprint serves as a guide for test construction. The blueprint indicates the content areas that will be addressed by the test and the number of items that will be included by content area and for the test as a whole. There is a blueprint for each test (e.g., grade 3 reading, grade 5 mathematics, grade 8 science, Virginia and United States History).

The Grade 3 Mathematics blueprint contains information for two types of tests, the online computer adaptive test (CAT) and the traditional test. A CAT is an online assessment that is customized for every student based on how the student responds to the questions. This is in contrast to the traditional test in which all students who take a particular version (paper, large print, or braille) of the test respond to the same test questions. All online versions of the Grade 3 Mathematics Standards of Learning (SOL) test (including audio) are computer adaptive.

All students are required to take the online version of the SOL tests with the exception of students who meet the criteria for needing a paper test. All paper versions of the test (including large print and braille) will be administered using the traditional format. Beginning in spring 2019, there will no longer be a separate Plain English Mathematics assessment for English learners or students with disabilities who have documented significant language impairments. All test questions for Grade 3 Mathematics have been determined to meet the criteria for Universal Design. The Universal Design principles require that language that is not specific to the content area (e.g., mathematics) be simplified and test questions be written so they are accessible by all populations of students. The SOL test questions have been reviewed by Virginia teachers and have been determined to meet the criteria for Universal Design.

Reporting Categories

Each test covers a number of Standards of Learning. In the test blueprint, the SOL are grouped into categories that address related content and skills. These categories are labeled as reporting categories. For example, a reporting category for the Grade 3 Mathematics Standards of Learning test is *Computation and Estimation*. Each of the SOL in this reporting category addresses computation using addition, subtraction, multiplication, or division or requires the student to estimate the answer to a problem. When the results of the SOL tests are reported, the scores will be presented for each reporting category and as a total test score.

Assignment of Standards of Learning to Reporting Category

In the Grade 3 Mathematics SOL test, each SOL is assigned to only one reporting category. For example, SOL 3.1a-c is assigned to “Number and Number Sense.”

Coverage of Standards of Learning

Due to the large number of SOL in each grade level content area, every Standard of Learning will not be assessed on every SOL test. By necessity, to keep the length of a test reasonable, each test will sample from the SOL within a reporting category. All SOL are eligible for inclusion on the traditional forms as well as the CAT forms.

Use of the Curriculum Framework

The Grade 3 Mathematics Standards of Learning, amplified by the Curriculum Framework, define the essential understandings, knowledge, and skills that are measured by the Standards of Learning tests. The Curriculum Framework asks essential questions, identifies essential understandings, defines essential content knowledge, and describes essential skills students need to master.

Grade 3 Mathematics Test Blueprint Summary Table

Reporting Category	Grade 3 SOL	Number of Items Computer Adaptive Test (CAT) Format	Number of Items Traditional Format
Number and Number Sense	3.1a-c 3.2a-c	7	10
Computation and Estimation	3.3a-b 3.4a-d 3.5	7	10
Measurement and Geometry	3.6a-c 3.7a-b 3.8a-b 3.9a-c 3.10 3.11 3.12a-c 3.13	8	11
Probability, Statistics, Patterns, Functions, and Algebra	3.14 3.15a-b 3.16 3.17	6	9
Number of Operational Items		28	40
Number of Field-Test Items*		4	none
Total Number of Items on Test		32	40

*Field-test items are being tried out with students for potential use on subsequent tests and will not be used to compute students' scores on the test.

Grade 3 Mathematics Expanded Test Blueprint

Reporting Category: Number and Number Sense

Number of Items: 7 (CAT) 10 (Traditional)

Standards of Learning:

- 3.1 The student will
- a) read, write, and identify the place and value of each digit in a six-digit whole number, with and without models;
 - b) round whole numbers, 9,999 or less, to the nearest ten, hundred, and thousand; and
 - c) compare and order whole numbers, each 9,999 or less.
- 3.2 The student will
- a) name and write fractions and mixed numbers represented by a model;
 - b) represent fractions and mixed numbers, with models and symbols; and
 - c) compare fractions having like and unlike denominators, using words and symbols ($>$, $<$, $=$, or \neq), with models.

Reporting Category: Computation and Estimation

Number of Items: 7 (CAT) 10 (Traditional)

Standards of Learning:

- 3.3 The student will
- a) estimate and determine the sum or difference of two whole numbers; and
 - b) create and solve single-step and multistep practical problems involving sums or differences of two whole numbers, each 9,999 or less.
- 3.4 The student will
- a) represent multiplication and division through 10×10 , using a variety of approaches and models;
 - b) create and solve single-step practical problems that involve multiplication and division through 10×10 ;
 - c) demonstrate fluency with multiplication facts of 0, 1, 2, 5, and 10; and
 - d) solve single-step practical problems involving multiplication of whole numbers, where one factor is 99 or less and the second factor is 5 or less.
- 3.5 The student will solve practical problems that involve addition and subtraction with proper fractions having like denominators of 12 or less.

Reporting Category: Measurement and Geometry**Number of Items: 8 (CAT) 11 (Traditional)****Standards of Learning:**

- 3.6 The student will
- a) determine the value of a collection of bills and coins whose total value is \$5.00 or less;
 - b) compare the value of two sets of coins or two sets of coins and bills; and
 - c) make change from \$5.00 or less.
- 3.7 The student will estimate and use U.S. Customary and metric units to measure
- a) length to the nearest $\frac{1}{2}$ inch, inch, foot, yard, centimeter, and meter; and
 - b) liquid volume in cups, pints, quarts, gallons, and liters.
- 3.8 The student will estimate and
- a) measure the distance around a polygon in order to determine its perimeter using U.S. Customary and metric units; and
 - b) count the number of square units needed to cover a given surface in order to determine its area.
- 3.9 The student will
- a) tell time to the nearest minute, using analog and digital clocks;
 - b) solve practical problems related to elapsed time in one-hour increments within a 12-hour period; and
 - c) identify equivalent periods of time and solve practical problems related to equivalent periods of time.
- 3.10 The student will read temperature to the nearest degree.
- 3.11 The student will identify and draw representations of points, lines, line segments, rays, and angles.
- 3.12 The student will
- a) define polygon;
 - b) identify and name polygons with 10 or fewer sides; and
 - c) combine and subdivide polygons with three or four sides and name the resulting polygon(s).
- 3.13 The student will identify and describe congruent and noncongruent figures.

Reporting Category: Probability, Statistics, Patterns, Functions, and Algebra
Number of Items: 6 (CAT) 9 (Traditional)
Standards of Learning:

- 3.14 The student will investigate and describe the concept of probability as a measurement of chance and list possible outcomes for a single event.
- 3.15 The student will
 - a) collect, organize, and represent data in pictographs or bar graphs; and
 - b) read and interpret data represented in pictographs and bar graphs.
- 3.16 The student will identify, describe, create, and extend patterns found in objects, pictures, numbers, and tables.
- 3.17 The student will create equations to represent equivalent mathematical relationships.